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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 09/702,512 | 10/31/2000 | Vincent Magret | 135,767 | 9985 |
| 24587 | 7590 | 09/08/2004 | EXAMINER | |
| ALCATEL USA INTELLECTUAL PROPERTY DEPARTMENT 3400 W. PLANO PARKWAY, MS LEGL2 PLANO, TX 75075 | | | BAYARD, DJENANE M | |
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| | | | 2141 | |

DATE MAILED: 09/08/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

(1)

QW

| | | |
|------------------------------|-----------------|---------------|
| Office Action Summary | Application No. | Applicant(s) |
| | 09/702,512 | MAGRET ET AL. |
| Examiner | Art Unit | |
| Djenane M Bayard | 2141 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on 28 May 2004.
- 2a) This action is **FINAL**. 2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 54-71 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) Claim(s) _____ is/are allowed.
- 6) Claim(s) 54-71 is/are rejected.
- 7) Claim(s) _____ is/are objected to.
- 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on _____ is/are: a) accepted or b) objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) All b) Some * c) None of:
1. Certified copies of the priority documents have been received.
2. Certified copies of the priority documents have been received in Application No. _____.
3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

| | |
|--|--|
| <ol style="list-style-type: none"> 1)<input checked="" type="checkbox"/> Notice of References Cited (PTO-892) 2)<input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) 3)<input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____. | <ol style="list-style-type: none"> 4)<input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____. 5)<input type="checkbox"/> Notice of Informal Patent Application (PTO-152) 6)<input type="checkbox"/> Other: _____. |
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DETAILED ACTION

1. This is in response to amendment filed on May 28, 04 in which claims 1-53 are canceled and claims 54-71 are pending. The applicant's arguments have been fully considered but are moot in view of the new ground of rejections. Therefore, this action is made final (see Examiner new rejection).

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:
 - (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.
3. Claim 66-71 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent application No. 2002/0102999 to Maggenti et al in view of U.S. Patent No. 6,243,758 to Okanoue.
 - a. As per claim 66, Maggenti et al teaches a method for multicasting internet protocol (IP) messages to mobile nodes in a wireless network having a home domain comprising a home agent and at least one foreign domain having a foreign agent, wherein each of the home and foreign domains further comprise a main access muter attached to a plurality of base station routers, and

wherein each base station muter is connected to one or more base stations for communicating with mobile nodes in a coverage area of the base station router(See page 21, paragraph 0269]), transmitting an agent advertisement message from, a foreign agent in a foreign domain to be broadcast in the foreign domain, wherein the agent advertisement message includes a network access identifier extension that includes a network access identifier of the foreign agent and capability of the foreign agent to support source specific multicast services for multicasting IP messages determining by the mobile node from the network access identifier extension to the agent advertisement message that the mobile node has entered a new foreign domain with a new foreign agent (see page 13, paragraph [0180]); However, Maggenti et al teaches transmitting a mobile IP registration request in response to entering a new foreign domain with a new foreign agent, wherein the mobile IP registration request includes a request by the mobile node to access the foreign domain and a multicast flag to indicate a request for source specific multicast services; alternatively, determining by the mobile node from the network access identifier extension to the agent advertisement message that the mobile node has not entered a new foreign domain but has entered into coverage area of a new foreign agent within the same foreign domain; and transmitting a multicast subscription request with an authentication extension to the new foreign agent in response to entering coverage area of the new foreign agent within the same foreign domain, wherein the multicast subscription request includes address of the home agent for the mobile node and address of each correspondent that has received a binding update message from the home agent.

Okanoue et al teaches transmitting a mobile IP registration request in response to entering a new foreign domain with a new foreign agent, wherein the mobile IP registration request

includes a request by the mobile node to access the foreign domain and a multicast flag to indicate a request for source specific multicast services; alternatively, determining by the mobile node from the network access identifier extension to the agent advertisement message that the mobile node has not entered a new foreign domain but has entered into coverage area of a new foreign agent within the same foreign domain; and transmitting a multicast subscription request with an authentication extension to the new foreign agent in response to entering coverage area of the new foreign agent within the same foreign domain, wherein the multicast subscription request includes address of the home agent for the mobile node and address of each correspondent that has received a binding update message from the home agent.

It would have been obvious to one with ordinary skill in the art at the time the invention was made to incorporate transmitting a mobile IP registration request in response to entering a new foreign domain with a new foreign agent, wherein the mobile IP registration request includes a request by the mobile node to access the foreign domain and a multicast flag to indicate a request for source specific multicast services; alternatively, determining by the mobile node from the network access identifier extension to the agent advertisement message that the mobile node has not entered a new foreign domain but has entered into coverage area of a new foreign agent within the same foreign domain; and transmitting a multicast subscription request with an authentication extension to the new foreign agent in response to entering coverage area of the new foreign agent within the same foreign domain, wherein the multicast subscription request includes address of the home agent for the mobile node and address of each correspondent that has received a binding update message from the home agent as taught by

Okanoue et al in the claimed invention of Maggenti et al in order to indicate that participation of outside mobile host in group activity is allowed (See col. 2, lines 25-26).

- b. As per claim 67, Maggenti et al wherein the step of determining by the mobile node from the network access identifier extension to the agent advertisement message that the mobile node has entered a new foreign domain with a new foreign agent, comprises the steps of comparing the network access identifier in the agent advertisement message with a network access identifier stored in memory from previously received agent advertisement messages; and determining that the network access identifiers are different (See page 20, Paragraph [0259-0260]).
- c. As per claim 68, Maggenti et al teaches wherein the step of determining by the mobile node from the network access identifier extension to the agent advertisement message that the mobile node has not entered a new foreign domain but has entered into coverage area of a new foreign agent within the same foreign domain, comprises the steps of comparing the network access identifier in the agent advertisement message with a network access identifier stored in memory from a previously received agent advertisement messages; and determining that the wireless domain addresses in the network access identifiers are the same but the foreign agent addresses are different (See page 20, Paragraph [0259-0260]).
- d. As per claim 69, Maggenti et al teaches alternatively, determining by the mobile node from the network access identifier extension to the agent advertisement message that the mobile

node is in the same foreign domain under the coverage area of the same foreign agent; and performing a new registration (See page 20, Paragraph [0259-0260]).

e. As per claim 70, Maggenti et al in response to receiving a multicast subscription request from the mobile node entering coverage area of the new foreign agent within the same foreign domain, verifying authentication of the mobile node by the new foreign agent and retrieving session key information (See page 9, paragraph [0125]).

f. As per claim 71, Maggenti et al teaches the steps of after verifying authentication of the mobile node entering coverage area of the new foreign agent within the same foreign domain, relaying IP messages to the mobile node on the source specific multicast channels formed by associating; the source specific multicast address of the mobile node in the multicast subscription request to each correspondent address in the multicast subscription request (See page 1, paragraph [0011]).

4. Claim 54-55 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent application No. 2002/0102999 to Maggenti et al in view of U.S. Patent No. 6,243,758 to Okanoue and further in view of U.S. Patent No. 6,578,085 to Khalil et al.

a. As per claim 54, Maggenti et al teaches a method for multicasting internet protocol (IP) messages to mobile nodes in a wireless network having a home domain comprising a home agent and at least one foreign domain having a foreign agent, wherein each of the home and foreign

domains further comprise a main access router attached to a plurality of base station routers, and wherein each base station router is connected to one or more base stations for communicating with mobile nodes in a coverage area of the base station router (See page 21, paragraph 0269]), transmitting an agent advertisement message from a I foreign agent in a foreign domain to be broadcast in the foreign domain, wherein the agent advertisement message includes a network access identifier extension-that indicates a capability of the foreign agent to support source specific multicast services for multicasting IP messages (see page 13, paragraph [0180]); However, Maggenti et al fails to teach wherein receiving by station router in the foreign domain a mobile IP registration request from a mobile node entering the coverage area of the base station router, wherein the mobile IP registration request includes a request by the mobile node to access the foreign domain and a multicast flag to indicate a request for source specific multicast services;

Okanoue et al teaches an internet multicast routing using flag bits indicating selective participation of mobile host in group activities within scope. Furthermore, Okanoue et al teaches wherein receiving by station router in the foreign domain a mobile IP registration request from a mobile node entering the coverage area of the base station router, wherein the mobile IP registration request includes a request by the mobile node to access the foreign domain and a multicast flag to indicate a request for source specific multicast services (See col. 2, lines 10-25).

It would have been obvious to one with ordinary skill in the art at the time the invention was made to incorporate wherein receiving by station router in the foreign domain a mobile IP registration request from a mobile node entering the coverage area of the base station router, wherein the mobile IP registration request includes a request by the mobile node to access the

foreign domain and a multicast flag to indicate a request for source specific multicast services as taught by Okanoue et al in the claimed invention of Maggenti et al in order to indicate that participation of outside mobile host in group activity is allowed (See col. 2, lines 25-26).

Furthermore, Maggenti et al fails to teach in response to determining no registration of the mobile node in a binding cache of the base station router, performing the following steps: appending an IP address of the base station router in extension to the mobile IP registration request; transmitting by the base station router the mobile IP registration request with the BSR extension to the main access router in the foreign domain; forwarding the mobile IP registration request from the main access router in the foreign domain to a home agent in a home domain of the mobile node; if the home agent supports simple multicast extensions for multicasting IP messages, allocating a source specific multicast address to the mobile node and appending, the source specific multicast address in a source specific multicast address extension to a mobile EP registration reply; receiving by the base station router the mobile IP registration reply from the main access router, wherein the mobile IP registration reply includes the source specific multicast address extension; creating an entry in a binding cache of the base station router having information on the mobile node and assigned source specific multicast address extension; and forwarding the registration reply and source specific multicast address to the mobile node, wherein the mobile node then subscribes to the source specific multicast channel.

Khalil et al teaches a system and method for route optimization in a wireless internet protocol network. Furthermore, Khalil et al teaches in response to determining no registration of the mobile node in a binding cache of the base station router, performing the following steps: appending an IP address of the base station router in extension to the mobile IP registration

request; transmitting by the base station muter the mobile IP registration request with the BSR extension to the main access router in the foreign domain; forwarding the mobile IP registration request from the main access router in the foreign domain to a home agent in a home domain of the mobile node; if the home agent supports simple multicast extensions for multicasting IP messages, 'allocating a source specific multicast address to the mobile node and appending, the source specific multicast address in a source specific multicast address extension to a mobile IP registration reply; receiving by the base station router the mobile IP registration reply from the main access router, wherein the mobile IP registration reply includes the source specific multicast address extension; creating an entry in a binding cache of the base station router having information on the mobile node and assigned source specific multicast address extension; and forwarding the registration reply and source specific multicast address to the mobile node, wherein the mobile node then subscribes to the source specific multicast channel.

It would have been obvious to one with ordinary skill in the art at the time the invention was made to incorporate in response to determining no registration of the mobile node in a binding cache of the base station router, performing the following steps: appending an IP address of the base station router in extension to the mobile IP registration request; transmitting by the base station muter the mobile IP registration request with the BSR extension to the main access router in the foreign domain; forwarding the mobile IP registration request from the main access router in the foreign domain to a home agent in a home domain of the mobile node; if the home agent supports simple multicast extensions for multicasting IP messages, 'allocating a source specific multicast address to the mobile node and appending, the source specific multicast address in a source specific multicast address extension to a mobile IP registration reply;

receiving by the base station router the mobile IP registration reply from the main access router, wherein the mobile IP registration reply includes the source specific multicast address extension; creating an entry in a binding cache of the base station router having information on the mobile node and assigned source specific multicast address extension; and forwarding the registration reply and source specific multicast address to the mobile node, wherein the mobile node then subscribes to the source specific multicast channel (See abstract and col. 4).

It would have been obvious to one with ordinary skill in the art at the time the invention was made to incorporate in response to determining no registration of the mobile node in a binding cache of the base station router, performing the following steps: appending an IP address of the base station router in extension to the mobile IP registration request; transmitting by the base station router the mobile IP registration request with the BSR extension to the main access router in the foreign domain; forwarding the mobile IP registration request from the main access router in the foreign domain to a home agent in a home domain of the mobile node; if the home agent supports simple multicast extensions for multicasting IP messages, 'allocating a source specific multicast address to the mobile node and appending, the source specific multicast address in a source specific multicast address extension to a mobile IP registration reply; receiving by the base station router the mobile IP registration reply from the main access router, wherein the mobile IP registration reply includes the source specific multicast address extension; creating an entry in a binding cache of the base station router having information on the mobile node and assigned source specific multicast address extension; and forwarding the registration reply and source specific multicast address to the mobile node, wherein the mobile node then

subscribes to the source specific multicast channel as taught by Khalil et al in order to optimize route in a wireless inter protocol (See col. 2, lines 19-21).

b. As per claim 55, Maggenti et al teaches the claimed invention as described above. However, Maggenti fails to teach intercepting by the home agent a first IP message addressed to the mobile node from a correspondent node when the mobile node is in the foreign domain; tunneling the first IP message into a second EP packet addressed to the source specific multicast address assigned to the mobile node; forwarding the second I' packet by the foreign agent to the mobile node; and detunneling the second IP packet by the mobile node to read the first IP message.

Khalil et al teaches intercepting by the home agent a first IP message addressed to the mobile node from a correspondent node when the mobile node is in the foreign domain; tunneling the first IP message into a second EP packet addressed to the source specific multicast address assigned to the mobile node; forwarding the second I' packet by the foreign agent to the mobile node; and detunneling the second IP packet by the mobile node to read the first IP message (See col. 3-4).

It would have been obvious to one with ordinary skill in the art at the time the invention was made to incorporate intercepting by the home agent a first IP message addressed to the mobile node from a correspondent node when the mobile node is in the foreign domain; tunneling the first IP message into a second EP packet addressed to the source specific multicast address assigned to the mobile node; forwarding the second I' packet by the foreign agent to the mobile node; and detunneling the second IP packet by the mobile node to read the first IP

message as taught by Khalil et al in order to optimize route in a wireless inter protocol (See col. 2, lines 19-21).

5. Claim 56-65 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent application No. 2002/0102999 to Maggenti et al in view of U.S. Patent No. 6,243,758 to Okanoue and further in view of U.S. Patent No. 6,578,085 to Khalil et al as applied to claim 54 above, and further in view of U.S. Patent No. 6,625,135 to Johnson et al.

a. As per claim 56, Maggenti et al teaches the claimed invention as described above. However, Maggenti et al fails to teach transmitting a binding update: message to a correspondent node of the mobile node, wherein the binding update message includes a care-of address for the mobile node; receiving an acknowledgement from the correspondent node; and transmitting a source update message to the mobile node informing the mobile node that the correspondent node received a binding update message.

Johnson et al teaches transmitting a binding update: message to a correspondent node of the mobile node, wherein the binding update message includes a care-of address for the mobile node; receiving an acknowledgement from the correspondent node; and transmitting a source update message to the mobile node informing the mobile node that the correspondent node received a binding update message (See col. 5-7).

It would have been obvious to one with ordinary skill in the art at the time the invention was made to incorporate transmitting a binding update: message to a correspondent node of the mobile node, wherein the binding update message includes a care-of address for the mobile

node; receiving an acknowledgement from the correspondent node; and transmitting a source update message to the mobile node informing the mobile node that the correspondent node received a binding update message as taught by Johnson et al in order to communicate between a first communication node and a second communication node (see col. 2, lines 46-47).

b. As per claim 57, Maggenti et al teaches wherein the care-of address for the mobile node is the source specific multicast address assigned to the mobile node (See page 13, paragraph [180]).

c. As per claim 58, Maggenti et al teaches the claimed invention as described above. However, Maggenti et al fails to teach wherein the mobile IP registration request includes a field that can be set by the mobile node to request that the home agent keep its source specific multicast address private in any binding update messages.

Khalil et al teaches wherein the mobile IP registration request includes a field that can be set by the mobile node to request that the home agent keep its source specific multicast address private in any binding update messages (See col. 4).

It would have been obvious to one with ordinary skill in the art at the time the invention was made to incorporate wherein the mobile IP registration request includes a field that can be set by the mobile node to request that the home agent keep its source specific multicast address private in any binding update messages as taught by Khalil et al in the claimed invention of Maggenti et al in order to optimize route in a wireless inter protocol (See col. 2, lines 19-21).

d. As per claim 59, Maggenti et al teaches the claimed invention as described above. However, Maggenti et al fails to teach wherein the care of address in the binding update message is an address of the home agent.

Khalil et al teaches wherein the care of address in the binding update message is an address of the home agent (See col. 3 and col. 4).

It would have been obvious to one with ordinary skill in the art at the time the invention was made to incorporate wherein the care of address in the binding update message is an address of the home agent as taught by Khalil et al in order to optimize route in a wireless inter protocol (See col. 2, lines 19-21).

e. As per claim 60, Maggenti et al teaches the claimed invention as described above. However, Maggenti et al fails to teach wherein the home agent transmits said binding update message to the correspondent node in response to receiving a binding request message from the correspondent node.

Khalil et al teaches wherein the home agent transmits said binding update message to the correspondent node in response to receiving a binding request message from the correspondent node (See col. 3 and col. 4)

It would have been obvious to one with ordinary skill in the art at the time the invention was made to incorporate wherein the home agent transmits said binding update message to the correspondent node in response to receiving a binding request message from the correspondent node as taught by Khalil et al in order to optimize route in a wireless inter protocol (See col. 2, lines 19-21).

f. As per claim 61, Maggenti et al teaches the claimed invention as described above. However, Maggenti et al fails to teach wherein the home agent transmits said binding update message to the correspondent node in response to receiving a binding warning message from the mobile node.

Khalil et al teaches wherein the home agent transmits said binding update message to the correspondent node in response to receiving a binding warning message from the mobile node (See col. 3 and col. 4).

It would have been obvious to one with ordinary skill in the art at the time the invention was made to incorporate wherein the home agent transmits said binding update message to the correspondent node in response to receiving a binding warning message from the mobile node as taught by Khalil et al in the claimed invention of Maggenti et al in order to optimize route in a wireless inter protocol (See col. 2, lines 19-21).

g. As per claim 62, Maggenti et al teaches the claimed invention as described above. However, Maggenti et al fails to teach determining by the mobile node from the network access identifier extension to the agent advertisement message whether the mobile node has entered a new foreign domain with a new foreign agent; and transmitting the mobile IP registration request in response to entering a new foreign domain with a new foreign agent.

Johnson et al teaches determining by the mobile node from the network access identifier extension to the agent advertisement message whether the mobile node has entered a new foreign

domain with a new foreign agent; and transmitting the mobile IP registration request in response to entering a new foreign domain with a new foreign agent (See col. 5-7).

It would have been obvious to one with ordinary skill in the art at the time the invention was made to incorporate determining by the mobile node from the network access identifier extension to the agent advertisement message whether the mobile node has entered a new foreign domain with a new foreign agent; and transmitting the mobile IP registration request in response to entering a new foreign domain with a new foreign agent as taught by Johnson et al in the claimed invention of Maggenti et al in order to communicate between a first communication node and a second communication node (see col. 2, lines 46-47).

h. As per claim 63, Maggenti et al teaches the claimed invention as described above. However, Maggenti et al fails to teach determining by the mobile node from the network access identifier extension to the agent advertisement message that the mobile node has not entered a new foreign domain but has entered into coverage area of a new foreign agent within the same foreign domain; transmitting a multicast subscription request with an authentication extension to the new foreign agent in response to entering coverage area of the new foreign agent within the same foreign domain, wherein the multicast subscription request includes address of the home agent for the mobile node and address of each correspondent that has received a binding update message from the home agent.

Johnson et al teaches determining by the mobile node from the network access identifier extension to the agent advertisement message that the mobile node has not entered a new foreign domain but has entered into coverage area of a new foreign agent within the same foreign

domain; transmitting a multicast subscription request with an authentication extension to the new foreign agent in response to entering coverage area of the new foreign agent within the same foreign domain, wherein the multicast subscription request includes address of the home agent for the mobile node and address of each correspondent that has received a binding update message from the home agent (See col. 5-7).

It would have been obvious to one with ordinary skill in the art at the time the invention was made to incorporate determining by the mobile node from the network access identifier extension to the agent advertisement message that the mobile node has not entered a new foreign domain but has entered into coverage area of a new foreign agent within the same foreign domain; transmitting a multicast subscription request with an authentication extension to the new foreign agent in response to entering coverage area of the new foreign agent within the same foreign domain, wherein the multicast subscription request includes address of the home agent for the mobile node and address of each correspondent that has received a binding update message from the home agent as taught by Johnson et al in the claimed invention of Maggenti et al in order to communicate between a first communication node and a second communication node (see col. 2, lines 46-47).

- i. As per claim 64, Maggenti et al teaches comprising the steps of in response to receiving a multicast subscription request from the mobile node, verifying the mobile node authentication by the foreign agent and retrieving session key information (See page 13, paragraph 180]).

g. As per claim 65, Maggenti et al relaying traffic to the mobile node on the source specific multicast channels formed by associating the source specific multicast address of the mobile node to each correspondent address in the multicast subscription request (See page 20, Paragraph [0259-0260]).

Conclusion

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Djenane M Bayard whose telephone number is (703) 305-6606. The examiner can normally be reached on 7:00 AM-4:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rupal Dharia can be reached on (703) 305-4003. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Djenane Bayard

Patent examiner



Paul Kang

Primary Patent examiner